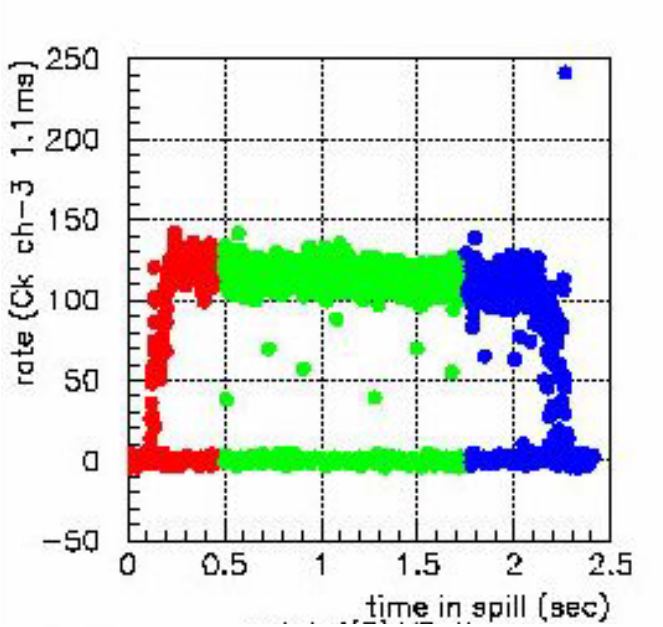
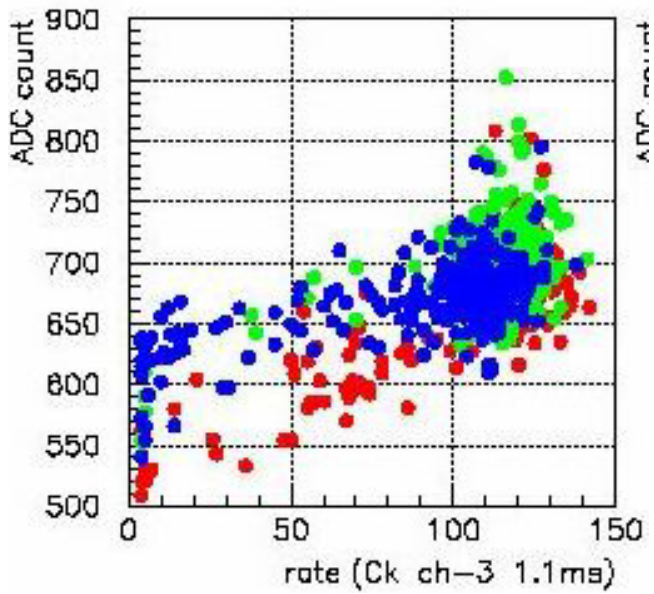
New Correction Method





Function approximation method using ratei(3) and TIS

Let's take a relatively straightforward idea…

$$F_{i=1\ldots3}(TIS)\cdot RateI(3)+A_0$$

$$F_i(TIS)\equiv A_{2i}\cdot TIS+A_{2i+1}$$

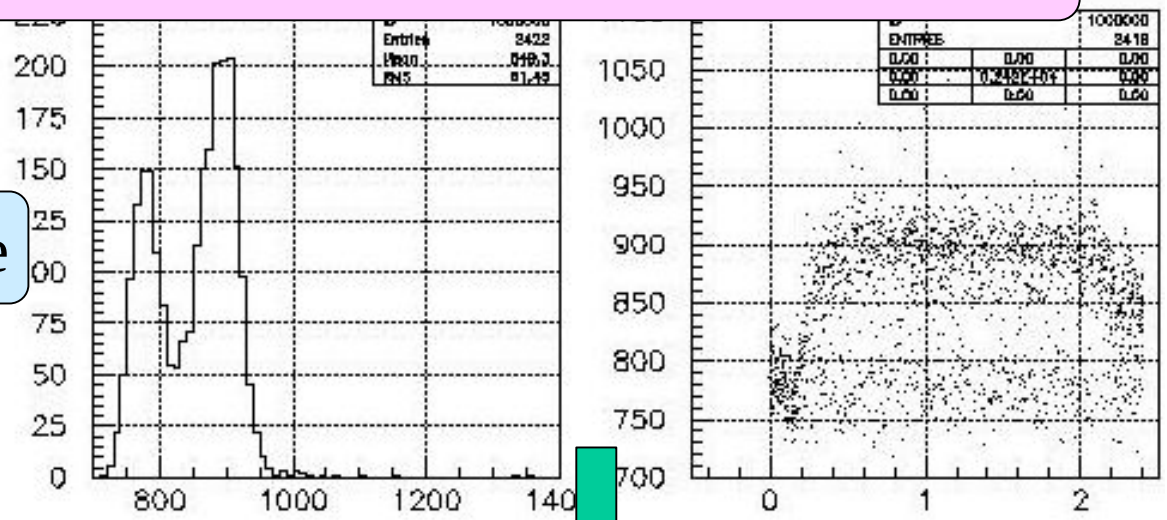
[range] $$F_i\equiv\begin{cases}F_1 & TIS\le 0.5\\ F_2 & 0.5<TIS\le 2.0\\ F_3 & 2.0<TIS\end{cases}$$

Parameter size :
7(parameters) * 912(PMT) = 6384
Cf. matrix : 570000

New Correction Method -result

Can New function describe the things well ?

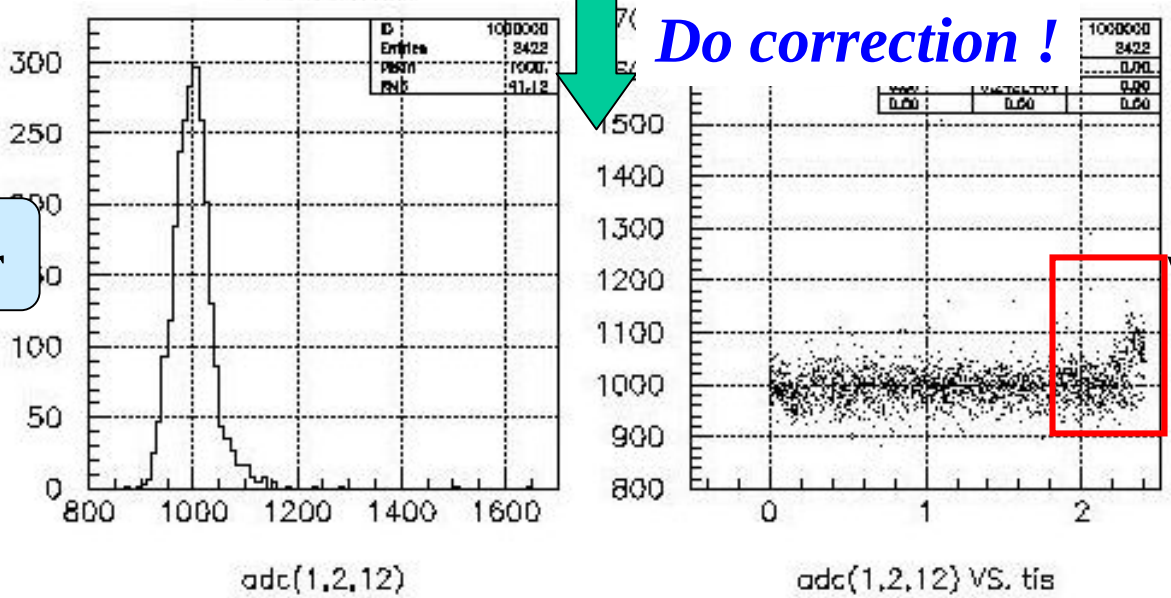
Before



Let's do correction using new function, method and see how it works.

Do correction !

After

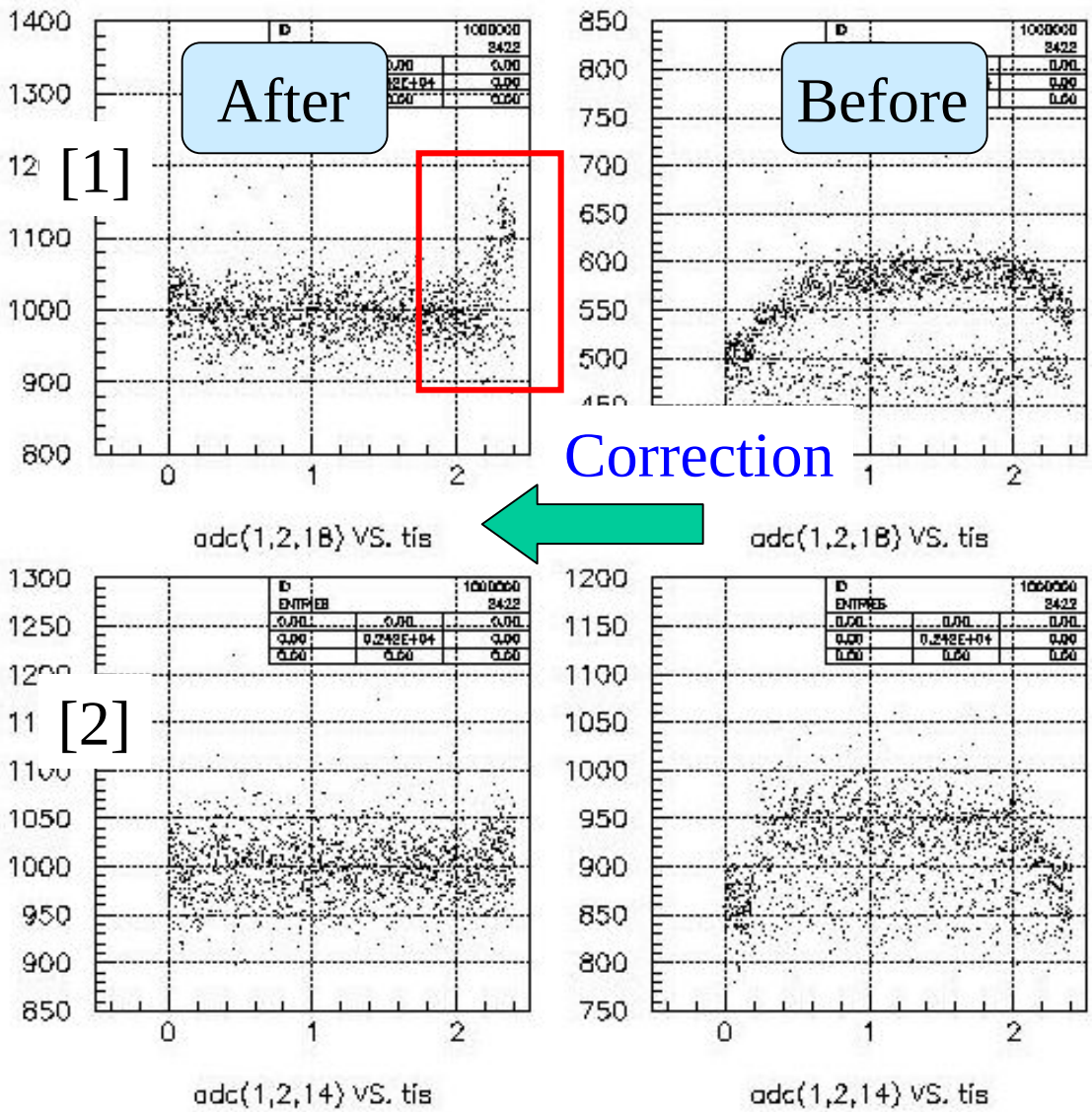


Miss correction

NOTE:
Peak is normalized ~ 1000.
Sample is rsmon data itself.

New Correction Method -result

Categorization of miss correction patterns.



Is there any other miss correction ?

Any inclination to fail ?

Eye scan ….
And categorize them.

1: fail at the spill end.

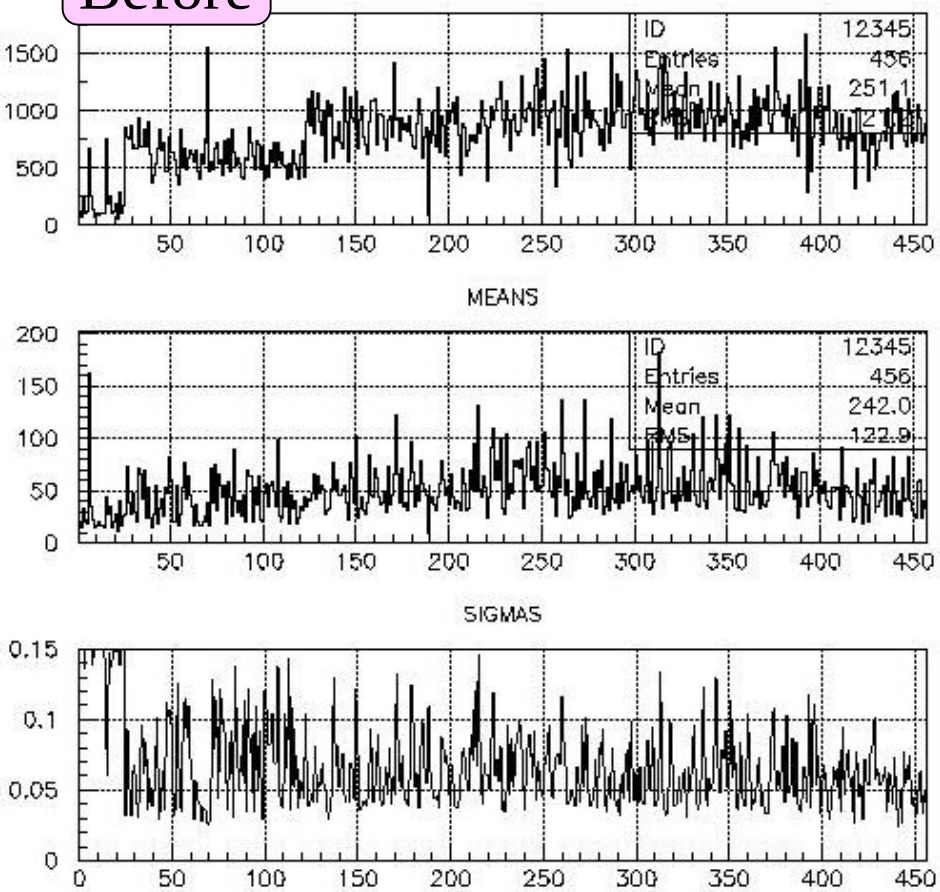
2: success to correct.

New Correction Method – result cont…

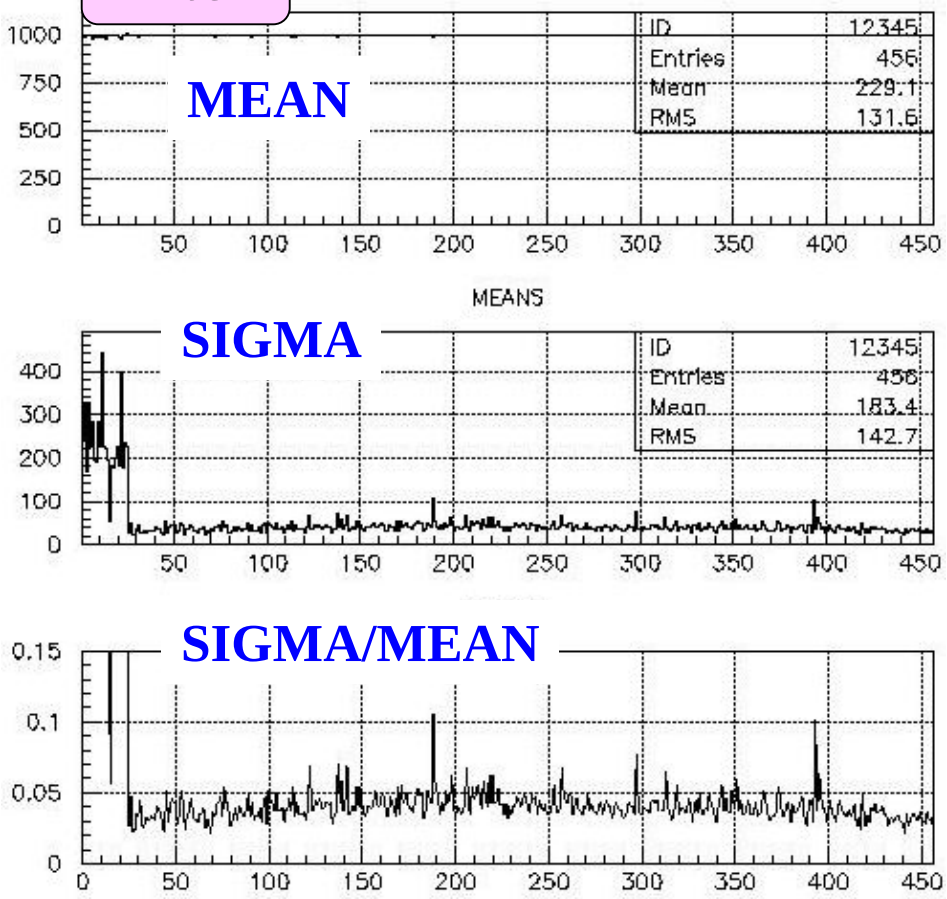
Let's take a look at more global things…

The sigma/mean ratio over the up-stream PMTs

Before



After



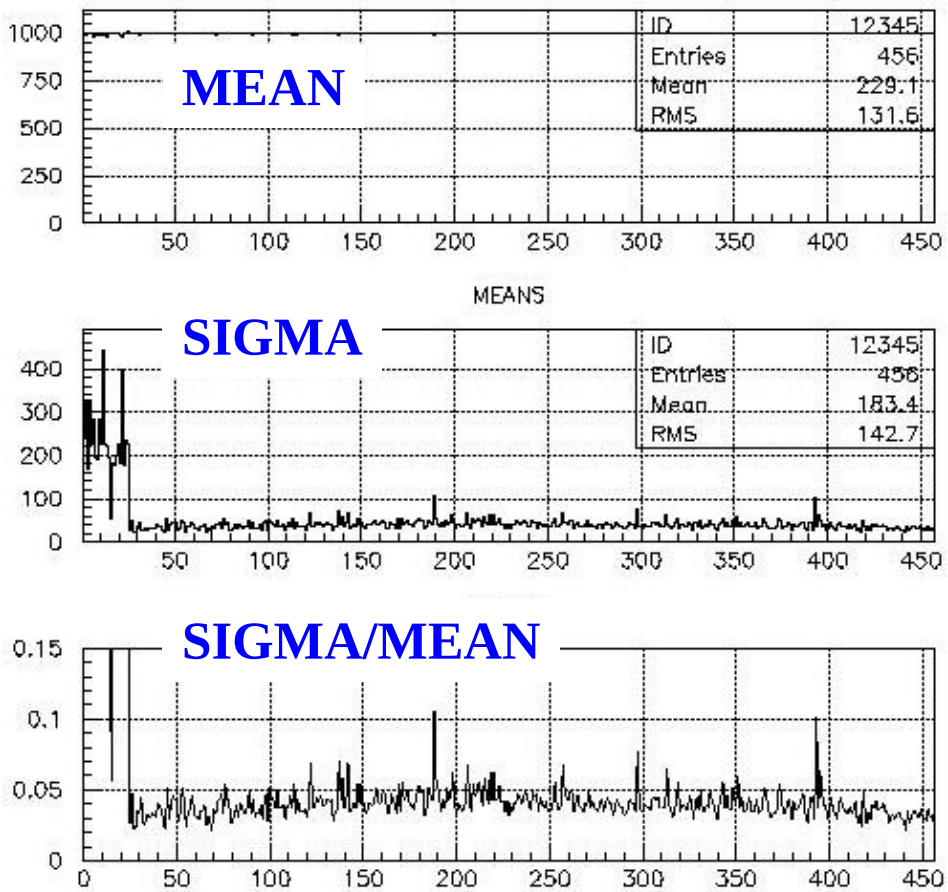
X-axis: PMT Number (up stream)

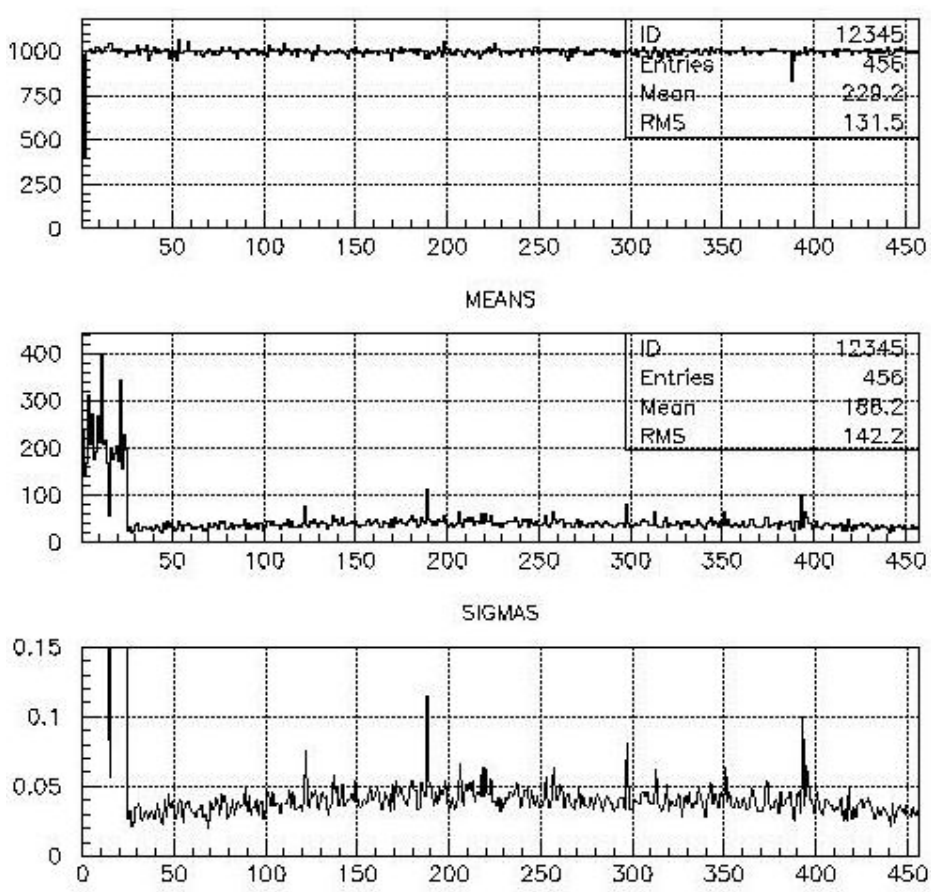
NOTE: Mean is normalized to 1000.

rsmon.raw00.50007.hbook

New Correction Method – result cont…

Can we apply this function (and its parameters) to another run ?





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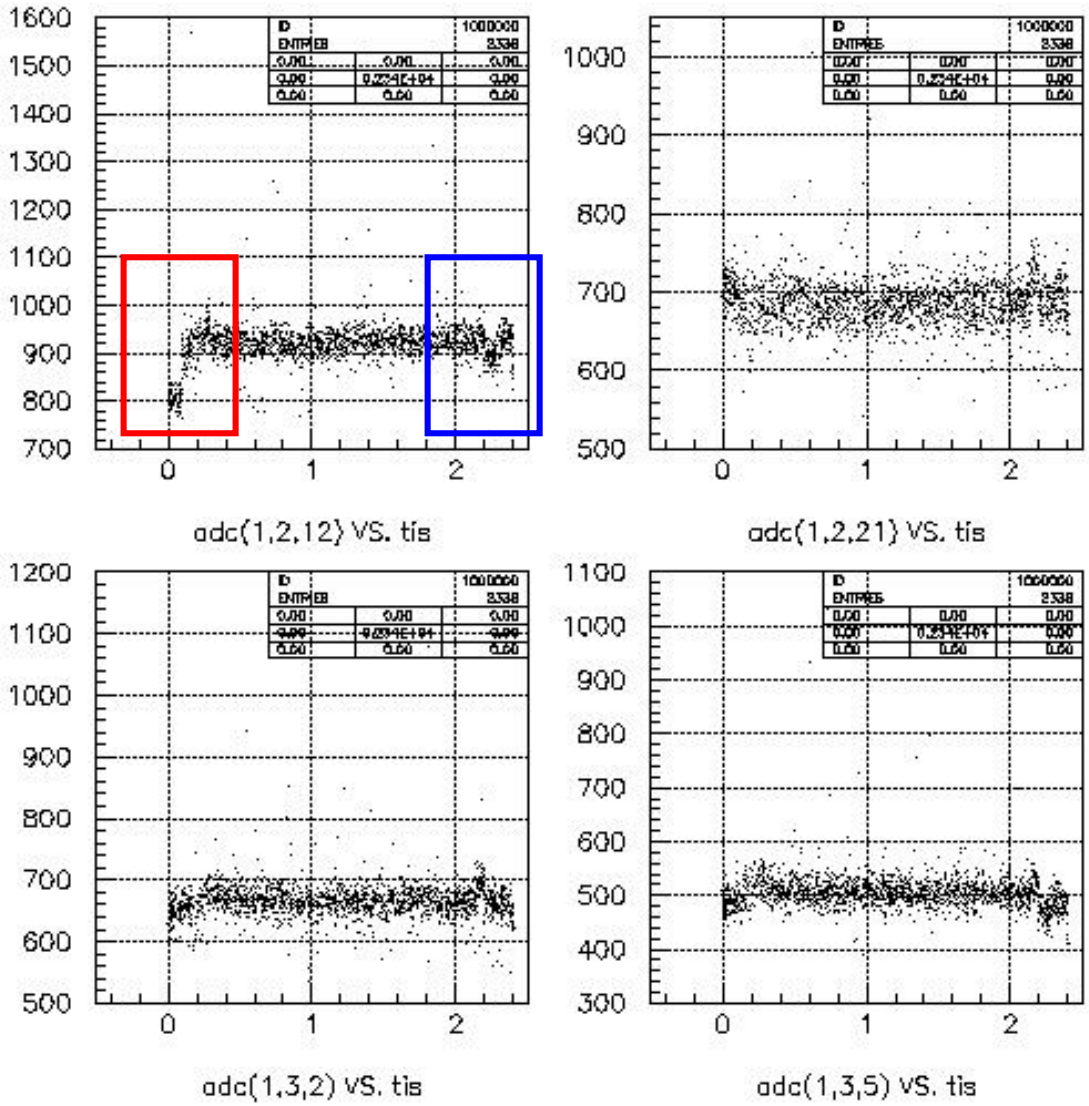
Correction Power of Jim's Matrix Method



Can new function method have enough correction power compare to the Jim's matrix method ?

Do matrix based correction using the same data sets, and Compare !

There is a tendency to rectify them to the miss direction at the both edges of spill structure.

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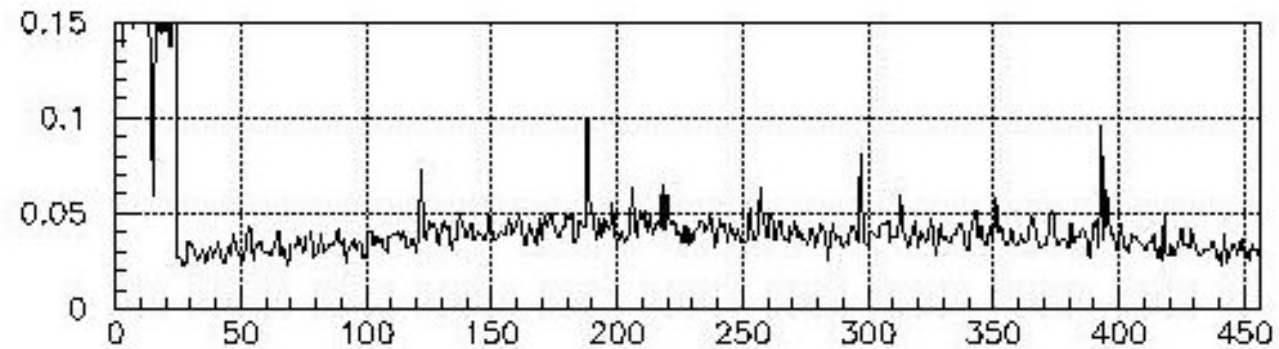
Matrix-49881-50218

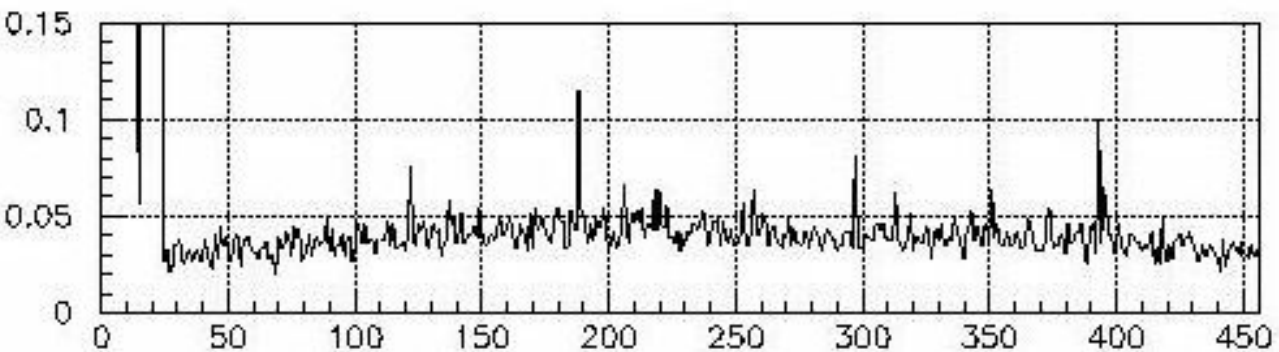
Comparison between New correction Method and Jim's Matrix Method

Sigma / Peak distribution



Jim's Method

X axis : PMT Number (up stream)



New Method

New correction method has the almost same correction effect as Matrix method.